PATENT
Atty Docket No.: 10006288-1

## In The U.S. Patent and Trademark Office

In Re the Application of:

Inventor(s):   Qian Lin                   Confirmation No.:   5006

Serial No.:    10/074,179                 Examiner:  Aung Soe Moe

Filed:         February 12, 2002          Group Art Unit:    2685

Title:         METHOD AND SYSTEM FOR ASSESSING THE PHOTO QUALITY OF
               A CAPTURED IMAGE INA DIGITAL STILL CAMERA

**MAIL STOP APPEAL BRIEF-PATENTS**
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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I hereby certify that this correspondence is being transmitted to the Patent and Trademark Office facsimile number (571) 273-8300 on February 21, 2006. This correspondence contains the following document(s):

1 sheet of Transmittal Letter for Appeal Brief (2 copies).

29 sheets of Appeal Brief including Appendices.

Respectfully submitted,

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February 21, 2006

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PATENT APPLICATION

ATTORNEY DOCKET NO. __10006288-1__

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

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Alexandria, VA  22313-1450

## TRANSMITTAL OF APPEAL BRIEF

Sir:

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on __Nov. 25, 2005__.

The fee for filing this Appeal Brief is (37 CFR 1.17(c)) $500.00.

**(complete (a) or (b) as applicable)**

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

( )  (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees:  37 CFR 1.17(a)-(d) for the total number of months checked below:

( )   one month          $120.00
( )   two months         $450.00
( )   three months       $1020.00
( )   four months        $1590.00

( ) The extension fee has already been filled in this application.

(X)  (b) Applicant believes that no extension of time is required.  However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account 08-2025 the sum of __$500.00__.  At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25.  Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.  A duplicate copy of this sheet is enclosed.

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Number of pages: 32

Typed Name: Judy H. Chung

Respectfully submitted,

Qian Lin

By _____

Timothy B. Kang

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PATENT APPLICATION

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Inventor(s):     Qian Lin

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# IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):    Qian Lin                    Confirmation No.:   5006

Serial No.:    10/074,179                   Examiner:  Aung Soe Moe

Filed:    February 12, 2002                 Group Art Unit:    2685

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# APPEAL BRIEF

Appellant respectfully submits this Appeal Brief in response to the Final Office

Action mailed on August 25, 2005 and the Notice of Panel Decision from Pre-Appeal Brief

Review mailed on January 20, 2006.

The present Appeal Brief is being filed within one month of the Notice of Panel

Decision from Pre-Appeal Brief Review because February 20, 2006 is a federal holiday.

**PATENT**

Atty Docket No.: 10006288-1
App. Ser. No.: 10/074,179
Art Unit: 2685

## TABLE OF CONTENTS

1

**PATENT**

<div align="right">
Atty Docket No.: 10006288-1<br>
App. Ser. No.: 10/074,179<br>
Art Unit: 2685
</div>

**APPENDICES**

PATENT                                    Atty Docket No.: 10006288-1
                                           App. Scr. No.: 10/074,179
                                                     Art Unit: 2685

## I. INTRODUCTION

### A. Real Party in Interest

The real party in interest with respect to this appeal is the Hewlett-Packard Company, the named assignee in this application.

### B. Related Appeals and Interferences

None.

### C. Status of Claims

Claims 1, 2, 20, and 25 have been canceled without prejudice or disclaimer of the subject matter contained therein.

Claims 3-13, 21-24, and 26 have been allowed.

Claims 14-19 and 27 stand rejected.

Pursuant to 37 C.F.R. § 41.37, Appellant hereby appeals the Examiner's decision finally rejecting Claims 14-19 and 27 to the Board of Patent Appeals and Interferences. Therefore, Claims 14-19 and 27 of this application are at issue on this appeal.

### D. Status of Amendments

No amendments to the claims have been made subsequent to the issuance of the final Office Action.

A copy of the claims at issue on appeal is attached as the Claims Appendix.

**PATENT**                                            Atty Docket No.: 10006288-1
                                                      App. Ser. No.: 10/074,179
                                                      Art Unit: 2685

II.    <u>SUMMARY OF CLAIMED SUBJECT MATTER</u>

Claim 14 of the present invention is the only independent claim at issue in this appeal.

Claim 14 pertains to a method for assessing the photo quality of a captured image in a

digital camera (20). The steps outlined in Claim 14 are depicted and described with respect

to Figures 7 and 13.

In the method of Claim 14, the photo quality of a captured image is checked, in-

camera, to determine if the photo quality is acceptable. This step is broadly depicted as

elements 64 and 66 in Figure 7 and as elements 90-98 in Figure 13. On page 8, paragraph 28

of the *Specification*, the captured image is described as being processed "in-camera" through

use of a "custom-made built-in ASIC, DSP, or general purpose processor for the purpose of

objectively checking the photo quality of the processed image..." In this regard, the terms

"checked, in-camera" may be defined as checking of the captured image through processes

that are performed within the digital camera (20) by one or more processing devices.

Claim 14 also recites that a corresponding photo quality feedback is provided to a

camera user. This step is shown in Figures 7 and 13 as the "yes" and "no" outputs to the

decision boxes 66, 93, 95, and 97.

Claim 14 further recites that a face quality figure of merit for the captured image is

computed and that the computed face quality figure of merit is compared to a threshold to

determine if the face quality figure of merit exceeds the threshold. These steps are shown in

Figure 7 as elements 64 and 66 and in Figure 13 as elements 90-98. In addition, paragraph 88

on page 15 of the *Specification* recites that the "face quality figure of merit" is computed by

"the built-in ASIC or DSP or general purpose processor of digital still camera 20", which is

"programmed to compute: (a) a brightness figure of merit, (b) a noise level figure of merit,

4

**PATENT**

(c) a contrast figure of merit, and (d) to check for presence/absence of red eye in the respective detected regions."

As such, for instance, the "face quality figure of merit" may comprise any of a number of different attributes of a face detected in the captured image. In addition, the different attributes are computed by the "built-in ASIC or DSP or general purpose processor of digital still camera 20".

### III.    GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether Claim 14 is unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 6,298,198 to Ina et al. in view of U.S. Patent No. 6,134,339 to Luo.

Whether Claims 15-18 and 27 are unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 6,298,198 to Ina et al. in view of U.S. Patent No. 6,134,339 to Luo and further in view of U.S. Patent Application Publication No. 2002/0191861 to Cheatle.

Whether Claim 19 is unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 6,298,198 to Ina et al. in view of U.S. Patent No. 6,134,339 to Luo and further in view of U.S. Patent No. 6,016,354 to Lin et al.

### IV.    ARGUMENT

**A.    Rejection of Claim 14 Under 35 U.S.C. §103(a) Over U.S. Patent No. 6,298,198 to Ina et al. in view of U.S. Patent No. 6,134,339 to Luo**

#### 1.    The Examiner's Position

The Examiner is of the opinion that the combination of U.S. Patent No. 6,298,198 to Ina et al. (herein after "Ina et al.") and U.S. Patent No. 6,134,339 to Luo (herein after "Luo")

**PATENT**                                                      Atty Docket No.: 10006288-1
                                                                App. Ser. No.: 10/074,179
                                                                Art Unit: 2685

discloses all of the features claimed in Claim 14 of the present invention and that Claim 14 is

therefore unpatentable over the combined disclosures contained in Ina et al. and Luo. In

setting forth this rejection, the Examiner asserts that Ina et al. discloses all of the features of

Claim 14 except "a face quality computing by *comparing said computed face quality figure*

*of merit to a threshold to determine if said face quality figure of merit exceeds said threshold*

as claimed."

More particularly, the Examiner asserts that Ina et al. discloses "checking, in-camera,

the photo quality of the captured image to determined[*sic*] if the photo quality is acceptable".

In making this assertion, the Examiner points to Figures 7, 11 and 14 of Ina et al. and asserts

that "the quality of the captured image is determined by the controller 100/92 located in the

camera 10; see col. 7, lines 50+, col. 8, lines 25+, and col. 9, lines 5+)".

The Examiner also asserts that Figure 14 of Ina et al. discloses "providing a

corresponding photo quality feedback...to a camera user". More particularly, the Examiner

asserts "that the feedback image is display[*sic*] on the LCD 40 of the camera [is provided] so

as the quality of the image can be determined by the user during the image capturing

process". The Examiner further asserts that the controller 100/92 computes "a face quality

(i.e., noted the face quality of the image 28 as shown in Fig. 14) of merit for the captured

image (i.e., the face quality of the image 30, 128, 130 and 134 as shown in Fig. 14 is

computed by the controller 100/92; see col. 7, lines 50+, col. 8, lines 25+, and col. 9, lines

5+)."

The Examiner still further asserts that Ina et al. "suggest[s] the quality of the digital

image can be analyzed to determine a blurred image (i.e., see col. 7, lines 45+) so that the

quality of the captured image (i.e., the Face of the image as shown in Fig. 14) may be

6

**PATENT**

determined by the user (i.e., col. 7, lines 45+, and col. 8, lines 5+)". In other words, the

Examiner suggests that Ina et al. discloses that the controller 100/92 computes a face quality

and that the user also determines a face quality during an image capturing process.

In addition, the Examiner states that Ina et al. "does not explicitly state a face quality

computing *by comparing said computed face quality figure of merit to a threshold to*

*determine if said face quality figure of merit exceeds said threshold* as claimed."

In an effort to make up for this deficiency in Ina et al., the Examiner relies upon the

disclosure contained in Luo. More particularly, the Examiner asserts that Figures 4 and 5;

column 2, lines 15+; column 7, lines 15+; column 8, lines 40+, and column 11, lines 5+ of

Luo discloses "computing, in a camera, a face quality figure of merit for the captured image

by comparing the computed face quality figure of merit to a threshold to determine if the face

quality figure of merit exceeds the threshold" and that this feature is thus "well known in the

art as taught by Luo". Based upon this assertion, the Examiner concludes that "it would have

been obvious to one having ordinary skill in the art at the time the invention was made to

modify the system of Ina '198 as taught by Luo '339, since Luo '339 states at col. 4, lines

15+ that such a modification would enable enhancement and manipulation of images

containing one or more human faces, so that, red-eye correction can be reliably performed."

### 2.    Discussion of the Law

The test for determining if a claim is rendered obvious by one or more references for

purposes of a rejection under 35 U.S.C. § 103 is set forth in MPEP § 706.02(j):

> To establish a *prima facie* case of obviousness, three basic criteria
> must be met. First, there must be some suggestion or motivation,
> either in the references themselves or in the knowledge generally

7

**PATENT**

available to one of ordinary skill in the art, to modify the reference
or to combine reference teachings. Second, there must be a
reasonable expectation of success. Finally, the prior art reference
(or references when combined) must teach or suggest all the claim
limitations. The teaching or suggestion to make the claimed
combination and the reasonable expectation of success must both
be found in the prior art and not based on applicant's disclosure. *In
re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Therefore, if the above-identified criteria are not met, then the cited references fail to

render obvious the claimed invention and, thus, the claimed invention is distinguishable over

the cited references.

### 3.    The Appellant's Position

The rejection of Claim 14 based upon the combined disclosures of Ina et al. and Luo

is clearly improper and should be withdrawn for at least the following reasons.

> a.    *Ina et al. fails to disclose that the photo quality of a captured
> image is checked in-camera as claimed in Claim 14 of the present
> invention*

The present invention as set forth in Claim 14 recites that the photo quality of a

captured image is checked, **in-camera**, to determine if the photo quality is acceptable, and

that the checking step comprises computing a face quality figure of merit for the captured

image and comparing the computed face quality figure of merit to a threshold. In other

words, Claim 14 recites that a face quality figure of merit is computed in-camera and that the

computed face quality figure of merit is compared to a threshold to determine whether the

face quality figure of merit exceeds the threshold.

**PATENT**                                          Atty Docket No.: 10006288-1
                                                    App. Ser. No.: 10/074,179
                                                    Art Unit: 2685

As discussed above in Section II, the terms "checked, in-camera" may be defined as
checking of the captured image through processes that are performed within the digital
camera (20) by one or more processing devices.

As noted in the Official Action dated August 25, 2005, the Examiner cites to a
relatively large number of figures and passages in Ina et al. in an effort to reject all of the
features claimed in Claim 14. As will be described in greater detail herein below, the
interpretations taken by the Examiner of the disclosure contained in Ina et al. are clearly
improper and fail to yield all of the features claimed in Claim 14 of the present invention.

In order to completely understand the improprieties in these interpretations, it is
important to note that Ina et al. is directed to a manual verification, by a user, of motion
during a film exposure time interval and not to a camera configured to automatically assess
the photo quality of a captured image. Ina et al. is particularly concerned with providing
users with the ability to manually determine whether an image captured on a film is blurred
through use of a hybrid film-electronic verifying camera 10. More particularly, Ina et al.
discloses in column 1, lines 46-50, that "[a] first digital image is captured during the initial
portion of the film exposure time interval [and a] second digital image is captured during the
final portion of the film exposure time interval." Ina et al. further discloses that the "images
are digitally processed and combined to provide a resultant electronic image that is shown on
an image display 40 mounted to the body 12." As such, "[m]ovement of the optical system
22 relative to the subject image 28 or movement of all or part of the subject image 28 is
visualized in the image display 40." (Column 3, lines 18-23).

A user may then view the resultant electronic image on the image display 40 to make
a determination as to whether the image captured on film contains unwanted movement.

9

PATENT

(Column 3, lines 24-32). As such, the verifying camera 10 does not compute a face quality figure of merit for the captured image as claimed in Claim 14. Instead, the verifying camera 10 merely contains equipment configured to convert the first and second digital images into a format suitable for combined display on the image display 40, as described in greater detail in column 5, line 36 to column 6, line 4. **The user and not a processor in the camera 10, therefore, makes the actual determination, through computations, as to whether the image captured on the film contained in the verifying camera 10 is acceptable.**

Turning now to the Office Action dated August 25, 2005, the Examiner alleges that Figures 7, 11, and 14 of Ina et al. disclose that the photo quality of the captured image is checked, in-camera, to determine if the photo quality is acceptable. As recited in column 2, lines 18 and 19 of Ina et al., Figure "7 is a flow chart of an embodiment of the motion verifying photography method." In this regard, Figure 7 depicts a process in which a first and a second digital image are captured and a representation of both digital images is visualized. Accordingly, Figure 7 fails to disclose that a face quality figure of merit is computed for a captured image in-camera.

Ina et al. discloses that Figure "11 illustrates a preferred embodiment of the method in which each electronic image exposure time interval 146, 148 is equal to a nominal electronic exposure time interval of 't'". (Column 10, lines 49-52). Again, Figure 11 depicts a method in which two digital images are captured and concurrently displayed to enable a user to make a determination as to whether there was relative motion in the image captured on film. Accordingly, Figure 11 also fails to disclose that a face quality figure of merit is computed for a captured image in-camera.

10

**PATENT**                                              Atty Docket No.: 10006288-1
                                                        App. Ser. No.: 10/074,179
                                                        Art Unit: 2685

Ina et al. discloses that Figure "14 illustrates the blur in the latent image 30 as a series

of closely juxtaposed lines." In this regard, Ina et al. discloses that Figure 14 shows a subject

image 28, a latent image 30 captured on film with a blur due to relative motion, and two

electronic images 128, 130 captured during a "picture taking" event. (Column 7, lines 64-

67). The resultant image 134, which is a combination of the two electronic images 128, 130,

is depicted as also including a blur due the relative motion of the camera 10 and the subject

image 28. Ina et al. therefore concludes that "[t]he resultant image 134 makes the relative

camera-subject motion apparent to the user immediately after capture of the latent image 30.

This allows the user to take another picture of the same subject matter, while correcting for

the undesired motion that was present in the earlier capture event." (Column 8, line 66-

column 9, line·4). Accordingly, Figure 14 of Ina et al. also fails to disclose that a face quality

figure·of merit is computed for a captured image in-camera.

The Examiner also alleges that "the quality of the captured image is determined by the

controller 100/92 located in the camera 10". In setting forth this allegation, the Examiner

cites to column 7, lines 50+, column 8, lines 25+, and column 9, lines 5+. None of these

cited sections, however, disclose that the "controller 100/92" determines the quality of the

captured image.

Instead, column 7, lines 50+ describes Figures 7-14 and that first and second digital

images combined to display a resultant image is used in the camera 10 to provide a user with

the ability to ascertain whether the latent image 30 captured on film is blurred. In

addition, the processor 92 is described as being downstream of the memories 98 and that the

combiner 132 forms part of the processor 92. (Column 8, lines 11-13). The combiner 132 is

disclosed as combining "the electronic images, modif[ying] the resultant electronic image as

11

**PATENT**

necessary for the requirements of a particular display 40, and outputs the resultant image 134

to the display 40, where the displayed result image (display image) produced is seen by the

photographer." (Column 8, lines 18-23). Clearly, therefore, the processor 92 of Ina et al.

does not determine the quality of the captured image as alleged by the Examiner.

The disclosures contained in column 8, lines 25+ and column 9, lines 5+ of Ina et al.

also fails to prove that the processor 100/92 of Ina et al. determines the quality of the

captured image. Instead, those passages contained in column 8, lines 25+ discuss in greater

detail the timing between when the first digital image is captured and when the second digital

image is captured so that they are correctly timed with the shutter speed of the latent image

capture on film. In addition, the passages contained in column 9, line 5+ discuss "artificially

sharpening" the resultant image 134 to enable the human eye to "more easily detect the

motion representation provided by the resultant image 134 than would be the case if the

resultant image exacted[*sic*] matched the latent image 30." (Column 9, lines 11-17).

As such, none of the sections cited by the Examiner could reasonably be interpreted to

indicate that the processor 100/92 of Ina et al. determines the quality of the captured image as

alleged by the Examiner. Instead, all of these cited sections clearly indicate that an image

resulting from first and second digital images are combined and displayed to a user for the

user to make a determination as to whether the latent image captured on film is blurred.

In fact, the Examiner agrees that Ina et al. discloses that the resultant image is

displayed "on an LCD 40 of the camera so as the quality of the image can be determined by

the user during the image capturing process". (Official Action dated August 25, 2005, page

6, first paragraph). The Examiner has therefore presented contradicting arguments with

respect to the disclosure contained in Ina et al. More particularly, the Examiner has asserted

12

PATENT

that both the controller 100/92 of the camera 10 and the user of the camera determine the

quality of the image captured by the camera 10 without providing any reasons as to why both

the controller 100/92 and the user would make this determination.

For at least the foregoing reasons, it is respectfully submitted that the Examiner has

failed to establish that Ina et al. discloses that the photo quality of a captured image is

checked in-camera as claimed in Claim 14 of the present invention.

> b.      *Ina et al. fails to disclose that a face quality figure of merit is
> computed for a captured image as claimed in Claim 14 of the present
> invention*

As noted above in Section II, the "face quality figure of merit" is described as being

computed by "the built-in ASIC or DSP or general purpose processor of digital still camera

20", which is "programmed to compute: (a) brightness figure of merit, (b) a noise level figure

of merit, (c) a contrast figure of merit, and (d) to check for presence/absence of red eye in the

respective detected regions." The "face quality figure of merit" may therefore comprise, for

instance, a number of different attributes of a face detected in the captured image which are

computed by "the built-in ASIC or DSP or general purpose processor of the digital still

camera 20."

Initially, the Examiner equates the "face quality figure of merit" with the "smiley"

faces depicted in Figure 14. More particularly, the Examiner asserts that the controller

100/92 computes a "face quality (i.e., noted[*sic*] the face quality of the image 28 as shown in

Fig. 14) of merit for the captured image (i.e., the face quality of the image 30, 128, 130 and

134 as shown in Fig. 14 is computed by the controller 100/92". The Examiner also cites to

column 7, lines 50+, column 8, lines 25+, and column 9, lines 5+)", which are discussed in

13

**PATENT**

detail herein above. These assertions are improper for at least the following additional

reasons.

As described in column 7, lines 43+, Figure 14 depicts different images of a subject

image 28 captured by the camera 10. These images include the latent image 30 captured on

film, a first digital image 128, a second digital image 130, and a resultant image 134, which is

a combination of the first digital image 128 and the second digital image 130. The

Examiner's assertion, therefore, that the face quality figure of merit of the subject image 28

is somehow computed by the controller 100/92 is clearly improper. In fact, and as described

above, the controller 100/92 merely operates to combine the first and second digital images

and to convert the digital images, if necessary, for display on the image display 40. As such,

the controller 100/92 does not compute a face quality figure of merit for the captured image,

but instead, enables the resultant image to be displayed so that a user may determine whether

a latent image captured on film is blurred.

In addition, it is quite clear from the Ina et al. disclosure that the "smiley" face

representation of the subject image 28 has been depicted as merely a representation of any

possible subject image and is not intended to indicate that the subject image 28 constitutes a

face. This is evident, for instance, because Ina et al. never directly discusses that images of

faces are captured, that faces in images are detected, nor that images of faces are processed.

In fact, therefore, the illustrations depicted in Figure 14 could be used to describe any type of

image captured by the camera 10.

Moreover, the Examiner has improperly asserted that computing a face quality figure

of merit for the captured image is a broad limitation disclosed by the proposed combination

of Ina et al. and Luo. (Office Action dated August 25, 2005, page 2, paragraph 3). In making

14

**PATENT**

this assertion, the Examiner has relied upon the holding in *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). However, the Examiner has failed to provide a clear indication as to how the features claimed in Claim 14 are being broadly interpreted and has thus failed to prove that these features are *prima facie* obvious in light of Ina et al. and Luo.

Initially, the Examiner has failed to clearly define how the terms "face quality figure of merit" have been broadly interpreted. Instead, the Examiner has stated that "face quality of the captured image (i.e., the Face of the image as shown in Fig. 14) can be determined by the user (i.e., col. 7, lines 45+, and col. 8, lines 5+)." (Office Action dated August 25, 2005, page 2, paragraph 4). It is unclear from this statement and from the remaining assertions made in the Office Action dated August 25, 2005 as to what the Examiner considers as the claimed "face quality figure of merit". As discussed above, the subject image 28 as well as the other images 30,128, 130, and 134 depicted in Figure 14 are not computed, in-camera, to check the photo quality of the captured image, as claimed in Claim 14.

It is, however, clear "that the words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification." *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). In addition, "[i]t is only when the specification provides definitions for terms appearing in the claims that the specification can be used in interpreting claim language." *In re Vogel*, 422 F.2d 438, 441, 164 USPQ 619, 622 (CCPA 1970). In this case, the terms "in-camera" and "face quality figure of merit" have been clearly defined in the specification, but the Examiner has neglected to consider those definitions.

Regardless, however, of how the terms "in-camera" and "face quality figure of merit" have been interpreted by the Examiner, Ina et al. fails to disclose that the photo quality of the

15

**PATENT**

captured image is checked in-camera to determine if the photo quality is acceptable. Ina et al., instead discloses that the quality of a captured image is determined by a user.

For at least the foregoing reasons, it is respectfully submitted that the Examiner has failed to establish that Ina et al. discloses that a face quality figure of merit is computed for a captured image as claimed in Claim 14 of the present invention.

c.      *Luo does not make up for the deficiencies in Ina et al. and the proposed combination therefore fails to disclose all of the features of Claim 14 of the present invention*

The Examiner asserts that "computing, in a camera, a face quality figure of merit for the captured image by comparing the computed face quality figure of merit to a threshold to determine if the face quality figure of merit exceeds the threshold is well known in the art as taught by Luo". In making this assertion, the Examiner cites to Figures 4 and 5, column 2, lines 15+, column 7, lines 15+, column 8, lines 40+, and column 11, lines 5+. As will be clearer from the discussion below, none of these cited sections discloses the above-cited features.

Luo pertains to "a method and apparatus for fast and automatic correction of eye-defects in captured image frames." (Column 1, lines 18-20). In this regard, Luo discloses an apparatus 10 for determining the positions of eyes through the "red-eye" phenomenon. (Column 7, lines 13-22). More particularly, the positions of the eyes are determined by capturing an image at ambient light and capturing an image with light from an illumination source 12. (Column 7, lines 28-32). The captured images are compensated for the illumination changes and the compensated image is subtracted from an uncompensated frame

**PATENT**

Atty Docket No.: 10006288-1
App. Ser. No.: 10/074,179
Art Unit: 2685

to obtain a color compensated difference image. (Column 7, lines 32-37). Luo further describes how the locations of the eyes are determined through analysis of the compensated difference image. (Column 7, lines 38-62). In addition, Luo states that an eye-defect correction may automatically be performed once the eye locations are determined. (Column 8, lines 29-32). The remainder of the disclosure contained in Luo discusses the above-described steps in greater detail.

In setting forth the rejection described above, the Examiner has failed to indicate exactly what feature in Luo the Examiner considers as reading on the "computed face quality figure of merit". In addition, the Examiner has failed to indicate what is being considered as the "threshold" and where Luo discloses that the "computed face quality figure of merit" is being compared to a threshold. Absent such clarifying information, it is difficult to determine why Luo has been cited by the Examiner to reject Claim 14.

Clearly, however, Luo fails to disclose that a face quality figure of merit for a captured image is computed as part of a checking step, in-camera, of the photo quality of the captured image to determine if the photo quality is acceptable. Luo further fails to disclose that the computed face quality figure of merit to a threshold to determine if the face quality figure of merit exceeds the threshold. Instead, as described above, Luo pertains to a face detection process through use of red-eye detection, and to compensation of the detected red-eye.

Accordingly, even assuming for the sake of argument that one of ordinary skill in the art were somehow motivated to modify the disclosure contained in Ina et al. with the disclosure contained in Luo, the proposed combination would still fail to yield all of the features of Claim 14. Consequently, Ina et al. and Luo fail to render obvious the claimed

17

**PATENT**

invention as set forth in Claim 14 and the Examiner has failed to establish a *prima facie* case
of obviousness.

B.    Rejection of Claims 15-18 and 27 Under 35 U.S.C. §103(a) Over U.S.
      Patent No. 6,298,198 to Ina et al. in View of U.S. Patent No. 6,134,339 to
      Luo and Further in View of U.S. Patent Application Publication No.
      2002/0191861 to Cheatle

1.    The Examiner's General Position

The Examiner is of the opinion that the combination of Ina et al., Luo, and U.S. Patent

Application Publication No. 2002/0191861 to Cheatle (herein after "Cheatle") discloses all of

the features claimed in Claims 15-18 and 27 of the present invention and that Claims 15-18

and 27 are therefore unpatentable over the combined discloses contained in Ina et al., Luo,

and Cheatle.

2.    Claim 15

a.    *Examiner's Position*

The Examiner asserts that the proposed combination of Ina et al. and Luo discloses all

of the features of Claim 15 except for "the step of converting the detected image data from

RGB color space into L*a*b* color space as claimed." The Examiner cites to Cheatle as

allegedly making up for this deficiency in the proposed combination of Ina et al. and Luo.

More particularly, the Examiner asserts that Figure 1 and paragraphs 86-89 of Cheatle

disclose the step of converting image data from the RGB color space to the L*a*b* color

18

**PATENT**

space. The Examiner also argues that the proposed combination would have been obvious to "provide a more convenient method for capturing and cropping electronic images thereof."

#### b.    _Appellant's Position_

As stated above, the proposed combination of Ina et al. and Luo fails to disclose all of the features of independent Claim 14. In addition, the Examiner has relied upon Cheatle solely for its alleged disclosure of converting images from the RGB color space to the L*a*b* color space. As such, the Examiner has not asserted that Cheatle makes up for the above-described deficiencies in Ina et al. and Luo. Moreover, Cheatle does not and can not be reasonably construed as making up for the deficiencies of Ina et al. and Luo discussed above.

The proposed combination of Ina et al., Luo, and Cheatle., therefore, fails to disclose all of the features in independent Claim 14 and depending Claim 15. The Examiner has therefore failed to establish that Claim 15 is _prima facie_ obvious over the proposed combination of Ina et al., Luo, and Cheatle. Accordingly, this rejection should be withdrawn.

#### 3.    **Claims 16-18 and 27**

#### a.    _Examiner's Position_

With respect to Claim 16, the Examiner asserts that the proposed combination of Ina et al., Luo, and Cheatle discloses "the step of computing the means[_sic_] of L*(i.e., the Luminance signals of the image) to obtain a brightness figure of merit (i.e., see col. 8, lines 14+ of Lou[_sic_] '339 and page 5, paragraphs 0086+ of Cheatle '861); determining if the

19

**PATENT**

brightness figure of merit falls within a brightness threshold range (i.e., as shown in Figs. 7 and 8 of Lou[*sic*] '339, the brightness peak values is compared with a predefined threshold to ensure the brightness figure of merit; see col. 87, lines 10+, col. 110, lines 50+, col. 11, lines 5+ of Luo '339)."

The Examiner has rejected Claims 17, 18 and 27 for reasons similar to those set forth with respect to Claim 16.

　　　　b.　　*Appellant's Position*

As stated above, the proposed combination of Ina et al. and Luo fails to disclose all of the features of independent Claim 14. In addition, the Examiner has relied upon Cheatle solely for its alleged disclosure of converting images from the RGB color space to the L*a*b* color space. As such, the Examiner has not asserted that Cheatle makes up for the above-described deficiencies in Ina et al. and Luo. Moreover, Cheatle does not and can not be reasonably construed as making up for the deficiencies of Ina et al. and Luo discussed above.

In addition, the Examiner relies upon the disclosure contained in paragraph 86 of Cheatle as allegedly disclosing that the mean of L*, the standard deviation of L*, and the overall standard deviation of L* are computed to obtain the figures of merit claimed in Claims 16-18 and 27. This interpretation of paragraph 86 of Cheatle is clearly improper because Cheatle fails to disclose any of the claimed features alleged by the Examiner. Instead, in paragraph 86, Cheatle discloses that an image may be converted from one color space to another and that the image may be downsampled. As such, Cheatle fails to disclose

**PATENT**

that the mean of L*, the standard deviation of L*, and the overall standard deviation of L* are computed to respectively obtain a brightness figures of merit, a noise figure of merit, and a contrast figure of merit as claimed in Claims 16-18 and 27.

Moreover, the Examiner relies upon the disclosure contained in column 8, lines 10+, column 10, lines 50+, and column 11, lines 5+ of Luo as disclosing a "predefined threshold" that is allegedly used for comparing the various figures of merit claimed in Claims 16-18 and 27. The only passage that discusses the use of a "threshold" is found in column 10, lines 5-7. That passage discusses the comparison of cross-correlation scores of local peaks with a pre-defined threshold. As described in the paragraphs preceding that passage, the cross-correlation scores are based upon the locations of the pupils with respect to the eyes as well as normalizations performed on faces. In this regard, the cross-correlation scores are used as a measure of the accuracy in determining the locations of the eyes in an image. As such, the comparison performed in Cheatle cannot reasonably be construed as being performed on a computed face quality figure of merit.

For at least the foregoing reasons, the proposed combination of Ina et al., Luo, and Cheatle., therefore, fails to disclose all of the features in independent Claim 14 and depending Claims 16-18 and 27. The Examiner has therefore failed to establish that Claims 16-18 and 27 are *prima facie* obvious over the proposed combination of Ina et al., Luo, and Cheatle. This rejection should, therefore, be withdrawn.

PATENT

Atty Docket No.: 10006288-1
App. Ser. No.: 10/074,179
Art Unit: 2685

C.    Rejection of Claim 19 Under 35 U.S.C. §103(a) Over U.S. Patent No. 6,298,198 to Ina et al. in View of U.S. Patent No. 6,134,339 to Luo and Further in View of U.S. Patent No. 6,016,354 to Lin et al.

1.    The Examiner's Position

The Examiner is of the opinion that the combination of Ina et al., Luo, and U.S. Patent No. 6,016,354 to Lin et al. (herein after "Lin et al.") discloses all of the features claimed in Claim 19 of the present invention and that Claim 19 is therefore unpatentable over the combined discloses contained in Ina et al., Luo, and Lin et al.

In setting forth this rejection, the Examiner asserts that Lin et al. discloses "the steps of converting the detected facial image data into a binary mask of only white and black pixels, wherein the white pixels represent pixels of red color and the black pixels represent pixels of colors other than red; and checking the binary mask for presence of white pixels." (Office Action dated August 25, 2005, page 10, first paragraph). The Examiner relies upon column 3, lines 15+, column 5, lines 5+, and column 6, lines 1+ as forming the basis for this rejection.

The Examiner additionally asserts that the proposed modification would have been obvious "since Lin '354 states at col. 2, lines 10+ that such a modification would automatically reduce redeye in an image with minimal user intervention.

2.    The Appellant's Position

As stated above, the proposed combination of Ina et al. and Luo fails to disclose all of the features of independent Claim 14. In addition, the Examiner has relied upon Lin et al. solely for its alleged disclosure of converting the detected facial image data into a binary

22

PATENT

mask of only white and black pixels, wherein the white pixels represent pixels of red color and the black pixels represent pixels of colors other than red; and checking the binary mask for presence of white pixels. As such, the Examiner has not asserted that Lin et al. makes up for the above-described deficiencies in Ina et al. and Luo. Moreover, Lin et al. does not and can not be reasonably construed as making up for the deficiencies of Ina et al. and Luo discussed above.

For at least the foregoing reasons, the proposed combination of Ina et al., Luo, and Lin et al., therefore, fails to disclose all of the features in independent Claim 14 and depending Claim 19. The Examiner has therefore failed to establish that Claim 19 is *prima facie* obvious over the proposed combination of Ina et al., Luo, and Lin et al. This rejection should, therefore, be withdrawn.

## V.    CONCLUSION

For at least the reasons set forth above, it is respectfully submitted that the rejection of Claims 14-19 and 27 is improper. The Appellant therefore respectfully requests that the

**PATENT**

<div align="right">Atty Docket No.: 10006288-1<br>
App. Ser. No.: 10/074,179<br>
Art Unit: 2685</div>

Board of Patent Appeals and Interferences reverse the Examiner's decision rejecting Claims 14-19 and 27 and to direct the Examiner to pass the case to issue.

Respectfully submitted,

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24

**PATENT**

Atty Docket No.: 10006288-1
App. Ser. No.: 10/074,179
Art Unit: 2685

## CLAIMS APPENDIX

**The Appealed Claims:**

14.    A method for assessing the photo quality of a captured image in a digital camera, said method comprising:

checking, in-camera, the photo quality of the captured image to determine if the photo quality is acceptable; and

providing a corresponding photo quality feedback to a camera user wherein said checking step further comprises:

computing a face quality figure of merit for the captured image; and

comparing said computed face quality figure of merit to a threshold to determine if said face quality figure of merit exceeds said threshold.

15.    The method of claim 14 wherein the computing step comprises:

detecting facial image data from the captured image; and

converting said detected facial image data from RGB color space into L*a*b color space.

16.    The method of claim 15 further comprising:

computing the mean of L* to obtain a brightness figure of merit;

determining if said brightness figure of merit falls within a brightness threshold range.

**PATENT**                                        Atty Docket No.: 10006288-1
                                                   App. Ser. No.: 10/074,179
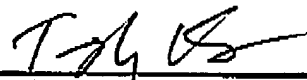                                                            Art Unit: 2685

17.     The method of claim 15 further comprising:

        computing the local standard deviation of L* to obtain a noise figure of merit; and

        determining if said noise figure of merit exceeds a noise threshold.


18.     The method of claim 15 further comprising:

        computing the overall standard deviation of L* to obtain a contrast figure of merit;

and

        determining if said contrast figure of merit falls within a contrast threshold range.


19.     The method of claim 14 wherein the computing step comprises:

        detecting facial image data from the captured image; and

        converting said detected facial image data into a binary mask of only white and black

pixels, wherein said white pixels represent pixels of red color and said black pixels represent

pixels of colors other than red; and

        checking said binary mask for presence of white pixels.


27.     The method of claim 14, wherein the computing of the face quality figure of merit

comprises

        computing:

        a brightness figure of merit;

        a noise level figure of merit; and a contrast figure of merit

and

        checking for a presence or an absence of red eye.

A-2

**PATENT**

<div align="right">

Atty Docket No.: 10006288-1
App. Ser. No.: 10/074,179
Art Unit: 2685
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## EVIDENCE APPENDIX
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None.

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**PATENT**                                          Atty Docket No.: 10006288-1
                                                    App. Ser. No.: 10/074,179
                                                           Art Unit: 2685


## RELATED PROCEEDINGS APPENDIX


No copies of decisions rendered by a court of the Board are submitted herewith.